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LOWRIE, LANDO & ANASTASI
RIVERFRONT OFFICE
ONE MAIN STREET, ELEVENTH FLOOR
CAMBRIDGE, MA 02142

EXAMINER	
BAKER, DAVID S	

ART UNIT	PAPER NUMBER
2884	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/764,342	ROZSA ET AL.
	Examiner	Art Unit
	David S. Baker	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/23/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-16,19-23,26-28,31-33,36,37,40-48,51,52 and 55-67* is/are rejected.

7)☒ Claim(s) *3, 4, 17, 18, 24, 25, 29, 30, 34, 35, 38, 39, 49, 50, 53, 54, 68, and 69* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/23/2004, 06/21/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/30/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 07/30/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

1. Claims 1-69 are objected to because of the following informalities:

The term "relatively long wavelengths" in claims 1, 19, 26, 31, 36, and 51 is a relative term which renders the claim indefinite. The term " relatively long wavelengths " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The balance of claims are object to as being dependent upon and already objected to claim. While the specification explains the alternative intent of the term "long wavelengths", explanation within the claim language of the alternative use of this terminology as well as a reference point and degree of extent for the term "relatively" is not provided. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8, 13, 19, 20, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Takami (Japanese Patent Application Publication #55-065176 A).

Regarding claim 1, Takami discloses an apparatus (radiant ray detector), comprising: a scintillator (scintillator crystal 1, figure 2); a photodetector (photodetector 7, figure 2) optically coupled to the scintillator; and a filter (cut filter 6, figure 2) operatively disposed intermediate the scintillator and the photodetector, being adapted to selectively reduce scintillator light having relatively long wavelengths (residual light, lines 1-16 of the Abstract).

Regarding claim 8, Takami discloses all the limitations of claim 1, and that the filter is attached to the photodetector (photodetector 7, figure 2) and the scintillator (scintillator 1, figure 2, lines 1-16 of the Abstract).

Regarding claim 13, Takami discloses that the filter (cut filter 6, figure 2) is disposed on the casing of the photodetector (photodetector 7, figure 2).

Regarding claim 19, Takami discloses a filter (cut filter 6, figure 2) adapted to selectively reduce light having relatively long wavelengths (residual light, lines 1-16 of the Abstract), and constructed and arranged to be operatively disposed intermediate a scintillator (scintillator 1, figure 2) and a photodetector (photodetector 7, figure 2, lines 1-16 of the Abstract).

Regarding claim 20, Takami discloses all the limitations of claim 19, and that the filter (cut filter 6, figure 2) is constructively arranged such that all the light that reaches

the photodetector (photodetector 7, figure 2) from the scintillator (scintillator 1, figure 2) passes through the filter (figure 2, lines 1-16 of the Abstract).

Regarding claim 31, Takami discloses a method of facilitating radiation detection, comprising: providing a filter (cut filter 6, figure 2) constructed and arranged to selectively reduce light emitted by the scintillator (scintillator 1, figure 2) having relatively long wavelengths (residual light, lines 1-16 of the Abstract), and positioning the filter in a location to receive light from the scintillator (figure 2, lines 1-16 of the Abstract).

3. Claim 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Lecoq (US Patent Application Publication #2002/0195565 A1).

Regarding claim 26, Lecoq discloses a method of detecting radiation, comprising: projecting radiation onto a scintillator to produce scintillation light (paragraph 0003); selectively reducing a portion of the scintillation light having relatively long wavelengths (paragraph 0020); and detecting the scintillation (paragraph 0003).

Regarding claim 27, Lecoq discloses that selectively reducing a portion of the light comprises filtering the light using an interference filter (paragraph 0020).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2, 5-7, 16, 36, 37, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) in view of Sekela (US Patent #6,359,282 B1).

Regarding claim 2, Takami discloses all the limitations of claim 1, but does not disclose that the scintillator is comprised of a material selected from the group consisting of CsI, CsI(Tl), CsI(Na), $CdWO_4$ and BaF_2. Sekela discloses that the scintillator may be a cesium iodide crystal (column 3 lines 49-55). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Sekela's detector assembly as the structure surrounding the cut filter. The motivation for doing so would have been to improve upon the durability of the radiant ray detector due to the gel pad that absorbs shock as well as to ease in the maintenance of the detector; for example, replacing the cut filter, if damaged, would be quicker since the device can be more easily disassembled and reassembled.

Regarding claim 5, Sekela discloses an optical window (70, figures 1 and 3) that could easily be replaced by the cut filter of Takami. By doing so, the filter would be

mechanically coupled (column 4 lines 53-67, column 5 lines 1-26) to the scintillator (scintillator module 12, figures 1 and 3) and benefit from the shock absorbing properties of the interference pad (72, figures 1 and 3) and gel pad (32, figures 1 and 3).

Regarding claim 6, Sekela discloses that the components of the scintillator (scintillator module 12, figures 1 and 3), including the crystal in place of the optical window (70, figures 1 and 3) are within a scintillator housing (scintillator housing 16, figures 1 and 3).

Regarding claim 7, Sekela discloses a first housing component (scintillator housing 16, figures 1 and 3) that the filter could be disposed in and a second housing component (electronic package outer housing (20, figures 1-3) that contains a photodetector (photomultiplier tube 24, column 3 lines 30-40), the first housing component and the second housing component being coupled together (figures 1 and 3, column 7 lines 29-40).

Regarding claim 16, Sekela discloses that the photodetector is a photomultiplier tube (photomultiplier tube 24, figure 1, column 3 lines 31-40).

Regarding claim 36, Takami discloses an apparatus (scintillator 1, aluminum casing 2, crystal 3, adhesives 4, glass window 5, cut filter 6, figure 2) for use with a photodetector (photodetector 7, figure 2), comprising: a scintillator (scintillator crystal 1, figure 2); a filter (cut filter 6, figure 2) adapted to selectively reduce scintillation light having relatively long wavelengths (residual light, lines 1-16 of the Abstract), but does not disclose a structure configured to maintain the scintillator and the filter, the structure being adapted to couple to a photodetector such that the filter is operatively disposed

intermediate the scintillator and the photodetector. Sekela discloses an apparatus for use with a photodetector (radiation detector 10, figure 1), comprising: a scintillator (scintillation crystal 18, figure 1), and a structure configured to maintain the scintillator (scintillator module 12, scintillator housing 16, figure 1), the structure being adapted to couple to a photodetector (photomultiplier tube 24, figure 1, column 7 lines 29-40). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Sekela's detector assembly as the structure surrounding the cut filter such that the filter is operatively disposed intermediate the scintillator and the photodetector as taught by Takami. The motivation for doing so would have been to improve upon the durability of the radiant ray detector due to the gel pad that absorbs shock as well as to ease in the maintenance of the detector; for example, replacing the cut filter, if damaged, would be quicker since the device can be more easily disassembled and reassembled.

Regarding claim 37, Sekela discloses that the scintillator may be a cesium iodide crystal (column 3 lines 49-55).

Regarding claim 40, Sekela discloses that the structure (radiation detector 10, figure 1) is comprised of a housing (scintillator housing 16, outer housing 20, figure 1, column 3 lines 31-40).

Regarding claim 41, Sekela discloses a first housing component (scintillator housing 16, figures 1 and 3) that the filter could be disposed in adapted to connect to a second housing component (electronic package outer housing (20, figures 1 and 3, column 7 lines 29-40) in which the photodetector (photomultiplier tube 24, figures 1-3) is disposed.

Regarding claim 42, Takami discloses that the filter (cut filter 6, figure 2) is attached to the scintillator (scintillator 1, figure 2, lines 1-16 of the Abstract).

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) in view of Bellian (US Patent #5,087,818 A).

Regarding claims 9-11, Takami discloses all the limitations of claim 1, but does not discloses expressly that the filter is attached by an adhesive to at least one of the scintillator and the photodetector. Bellian discloses a beta scintillation probe comprised of a scintillator (scintillator 22, figure 4) and a photodetector (photomultiplier tube 12, figure 4) with a filter (filter 40, figure 4) disposed intermediate the scintillator and photodetector where the filter is optically coupled to the scintillator through an epoxy adhesive (column 4 lines 40-46). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use an epoxy adhesive to optically couple the filter and scintillator. The motivation for doing so would have been to improve the transmission of light to the photodetector.

5. Claims 12, 14, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) in view of Sulzbach (US Patent #3,996,461 A).

Regarding claim 12, Takami discloses all the limitations of claim 1, but does not disclose that the filter is a coating disposed on one of the photodetector and the scintillator. Sulzbach discloses an interference type filter (filter 8, figure 1) coating disposed on a photodetector (photodiode 2, figure 1). At the time the invention was

made, it would have been obvious to a person of ordinary skill in the art to disposes a filter coating on the photodetector. The motivation for doing so would have been to minimize the space required for the filter.

Regarding claim 14, Sulzbach discloses that the filter is an interference type filter (column 3 lines 5-18).

Regarding claim 32, Takami discloses all the limitations of claim 31, but does not disclose the step of selectively reducing comprises filtering the light using one of a dichroic filter, a colored glass filter and an interference filter. Sulzbach discloses a method of selectively reducing light to a photodetector comprising filtering the light through an interference filter coating (column 3 lines 45-68). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to filter the light using an interference filter coating. The motivation for doing so would have been to selectively filter only the desired wavelengths to the photodetector while minimizing the space required for the filter.

6. Claims 15 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) in view of Arthur (US Patent #3,892,971).

Regarding claims 15 and 33, Takami discloses all the limitations of claims 1 and 31, respectively, but does not discloses that the filter comprises at least one of a high pass filter, a notch filter and a bandpass filter. Arthur discloses that the filter is a bandpass optical filter (bandpass optical filter 10, figure 1, column 1 lines 33-57) for use in a scintillation detector that is disposed between a scintillator (scintillation crystal 30, figure

1) and a photodetector (photomultiplier tube 16, figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to filter the light using a bandpass filter. The motivation for doing so would have been to selectively filter only the desired scintillated wavelengths to the photodetector.

7. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) in view of Sulzbach (US Patent #3,996,461 A) and Sekela (US Patent #6,359,282 B1).

Regarding claim 21-23, Takami discloses all the limitations of claim 19, but does not disclose that the filter is disposed on a substrate, that the scintillator is disposed in a housing and the substrate is adapted to be connected to the housing, or that the substrate is metalized along its lateral sides. Sulzbach discloses a filter (filter 8, figure 1) that is disposed on a substrate. Sekela discloses a scintillator (scintillation crystal 18, figure 3) that is disposed in a housing (scintillator housing 16, figure 3) that contains a substrate (optical window 70, figure 3) that can be used as a substrate for the deposition of a filter coating. Sekela also discloses that the substrate (optical window 70, figure 3) is adapted to be connected to the housing (column 5 line 34-41) and that the substrate is metalized along is lateral sides (column 5 lines 8-26). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to dispose Sulzbach's filter coating on the optical window of Sekela that is in turn attached to the scintillator housing. The motivation for doing so would have been that by disposing the filter coating on the side of the optical window nearest the scintillator, the beveled edges in conjunction with the filter would improve the filter seal of the optical axis making sure all light passed

through the filter. Additionally, by disposing the filter coating on the optical window instead of the photodetector, the photodetector need not be replaced if the filter is scratched or needs to be replaced.

8. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lecoq (US Patent Application Publication #2002/0195565 A1) in view of Arthur (US Patent #3,892,971).

Regarding claim 28, Lecoq discloses all the limitations of claim 26, but does not discloses that the filter comprises at least one of a high pass filter, a notch filter and a bandpass filter. Arthur discloses that the filter is a bandpass optical filter (bandpass optical filter 10, figure 1, column 1 lines 33-57) for use in a scintillation detector that is disposed between a scintillator (scintillation crystal 30, figure 1) and a photodetector (photomultiplier tube 16, figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to filter the light using a bandpass filter. The motivation for doing so would have been to selectively filter only the desired scintillated wavelengths to the photodetector.

9. Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) and Sekela (US Patent #6,359,282 B1), and further in view of Bellian (US Patent #5,087,818 A).

Regarding claims 43-45, Takami and Sekela discloses all the limitations of claim 36, but does not discloses expressly that the filter is attached by an adhesive to at least one of the scintillator and the photodetector. Bellian discloses a beta scintillation probe comprised of a scintillator (scintillator 22, figure 4) and a photodetector (photomultiplier tube 12, figure 4) with a filter (filter 40, figure 4) disposed intermediate the scintillator

and photodetector where the filter is optically coupled to the scintillator through an epoxy adhesive (column 4 lines 40-46). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use an epoxy adhesive to optically couple the filter and scintillator. The motivation for doing so would have been to improve the transmission of light to the photodetector.

10. Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) and Sekela (US Patent #6,359,282 B1), and further in view of Sulzbach (US Patent #3,996,461 A).

Regarding claim 46 and 47, Takami and Sekela disclose all the limitations of claim 36, but do not disclose that the filter is a coating on the scintillator. Sulzbach discloses an interference filter coating (filter 8, figure 1) disposed on a substrate. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Sulzbach's filter coating on the scintillation crystal of Sekela. The motivation for doing so would have been that by disposing the filter coating on the scintillator crystal, the chance of light escaping the scintillator but not passing through the filter would be nearly eliminated.

11. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takami (Japanese Patent Application Publication #55-065176 A) and Sekela (US Patent #6,359,282 B1), and further in view of Arthur (US Patent #3,892,971).

Regarding claim 48, Takami and Sekela discloses all the limitations of claim 36, but does not discloses that the filter comprises at least one of a high pass filter, a notch filter and a bandpass filter. Arthur discloses that the filter is a bandpass optical filter

(bandpass optical filter 10, figure 1, column 1 lines 33-57) for use in a scintillation detector that is disposed between a scintillator (scintillation crystal 30, figure 1) and a photodetector (photomultiplier tube 16, figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to filter the light using a bandpass filter. The motivation for doing so would have been to selectively filter only the desired scintillated wavelengths to the photodetector.

12. Claims 51, 58, 66, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lecoq (US Patent Application Publication #2002/0195565 A1) in view of Takami (Japanese Patent Application Publication #55-065176 A).

Regarding claim 51, Lecoq discloses a scintillation system, comprising: a radiation source (unnumbered positron source, figure 6), a scintillator (scintillators 14, 16, 18, 20, figure 6) to receive radiation from the radiation source; a photodetector (photodetectors 22, 24, figure 6) to receive scintillation light from the scintillator; and a filter (wavelength dividers 34, 36) operatively disposed intermediate the scintillator and the photodetector (paragraph 0020) and adapted to selectively reduce scintillation light having relatively long wavelengths (paragraph 0020). Lecoq does not disclose that the components of the scintillator system are all optically coupled together. Takami discloses a scintillator (scintillator 1, figure 2) to receive radiation, pass scintillation light on to a filter (cut filter 6, figure 2), and then have the filtered light detected by a photodetector (photomultiplier 7, figure 2), all of which are optically coupled together. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the detection system of Takami in the scintillation system of Lecoq.

The motivation for doing so would have been that the detectors of Takami have the desired structure of Lecoq's detector but would improve the detection of radiation since the components are optically coupled together.

Regarding claim 58, Takami discloses that the filter is attached to the photodetector (photodetector 7, figure 2) and the scintillator (scintillator 1, figure 2, lines 1-16 of the Abstract).

Regarding claim 66, Lecoq discloses that the filter then comprises photomultiplier tubes (paragraph 0003).

Regarding claim 67, Lecoq discloses that the scintillation system is computed tomography system (paragraph 0001).

13. Claims 52 and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lecoq (US Patent Application Publication #2002/0195565 A1) and Takami (Japanese Patent Application Publication #55-065176 A), and further in view of Sekela (US Patent #6,359,282 B1).

Regarding claim 52, Lecoq and Takami discloses all the limitations of claim 51, but does not disclose that the scintillator is comprised of a material selected from the group consisting of CsI, CsI(Tl), CsI(Na), $CdWO_4$ and BaF_2. Sekela discloses that the scintillator may be a cesium iodide crystal (column 3 lines 49-55). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Sekela's detector assembly as the structure surrounding the cut filter. The motivation for doing so would have been to improve upon the durability of the radiant ray detector due to the gel pad that absorbs shock as well as to ease in the maintenance of the detector;

for example, replacing the cut filter, if damaged, would be quicker since the device can be more easily disassembled and reassembled.

Regarding claim 55, Sekela discloses an optical window (70, figures 1 and 3) that could easily be replaced by the cut filter of Takami. By doing so, the filter would be mechanically coupled (column 4 lines 53-67, column 5 lines 1-26) to the scintillator (scintillator module 12, figures 1 and 3) and benefit from the shock absorbing properties of the interference pad (72, figures 1 and 3) and gel pad (32, figures 1 and 3).

Regarding claim 56, Sekela discloses that the components of the scintillator (scintillator module 12, figures 1 and 3), including the crystal in place of the optical window (70, figures 1 and 3) are within a scintillator housing (scintillator housing 16, figures 1 and 3).

Regarding claim 57, Sekela discloses a first housing component (scintillator housing 16, figures 1 and 3) that the filter could be disposed in and a second housing component (electronic package outer housing 20, figures 1-3) that contains a photodetector (photomultiplier tube 24, column 3 lines 30-40), the first housing component and the second housing component being coupled together (figures 1 and 3, column 7 lines 29-40)

14. Claims 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lecoq (US Patent Application Publication #2002/0195565 A1) and Takami (Japanese Patent Application Publication #55-065176 A), and further in view of Bellian (US Patent #5,087,818 A).

Regarding claims 59-61, Lecoq and Takami disclose all the limitations of claim 51, but does not discloses expressly that the filter is attached by an adhesive to at least

one of the scintillator and the photodetector. Bellian discloses a beta scintillation probe comprised of a scintillator (scintillator 22, figure 4) and a photodetector (photomultiplier tube 12, figure 4) with a filter (filter 40, figure 4) disposed intermediate the scintillator and photodetector where the filter is optically coupled to the scintillator through an epoxy adhesive (column 4 lines 40-46). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use an epoxy adhesive to optically couple the filter and scintillator. The motivation for doing so would have been to improve the transmission of light to the photodetector.

15. Claims 62-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lecoq (US Patent Application Publication #2002/0195565 A1) and Takami (Japanese Patent Application Publication #55-065176 A), and further in view of Sulzbach (US Patent #3,996,461 A).

Regarding claim 62, Lecoq and Takami disclose all the limitations of claim 51, but do not disclose that the filter is a coating disposed on one of the photodetector and the scintillator. Sulzbach discloses an interference type filter (filter 8, figure 1) coating disposed on a photodetector (photodiode 2, figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to disposes a filter coating on the photodetector. The motivation for doing so would have been to minimize the space required for the filter.

Regarding claim 63, Sulzbach discloses a filter coating (filter 8, figure 1) that could be deposited on the photodetector casing (electronic package outer housing 20, figures 1-3) of Takami. At the time the invention was made, it would have been obvious to deposit the filter coating on the casing. The motivation for doing so would have been

that the photodetector or scintillator might be replaced without having to reapply the filtering coating to another photodetector or scintillator.

Regarding claim 64, Sulzbach discloses that the filter is an interference type filter (column 3 lines 5-18).

16. Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lecoq (US Patent Application Publication #2002/0195565 A1) and Takami (Japanese Patent Application Publication #55-065176 A), and further in view of Arthur (US Patent #3,892,971).

Regarding claim 65, Lecoq and Takami discloses all the limitations of claim 51, but does not discloses that the filter comprises at least one of a high pass filter, a notch filter and a bandpass filter. Arthur discloses that the filter is a bandpass optical filter (bandpass optical filter 10, figure 1, column 1 lines 33-57) for use in a scintillation detector that is disposed between a scintillator (scintillation crystal 30, figure 1) and a photodetector (photomultiplier tube 16, figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to filter the light using a bandpass filter. The motivation for doing so would have been to selectively filter only the desired scintillated wavelengths to the photodetector.

Allowable Subject Matter

1. Claims 3, 4, 17, 18, 24, 25, 29, 30, 34, 35, 38, 39, 49, 50, 53, 54, 68, 69 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

2. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 3, 4, 38, 39, 53, and 54, the prior art of record does not disclose or make obvious the use of a blue additive dichroic filter or a cyan subtractive dichroic filter to reduce scintillator light having relatively long wavelengths. The prior art relating to these filters mostly pertains to photography or spectrophotometry and not to the use of the filtering of scintillation light that is to be passed to a photodetector.

Regarding claims 17, 18, 24, 25, 29, 30, 34, 35, 49, 50, 68, and 69, the prior art of reference does not disclose or make obvious the filtering of scintillation light before it reaches a photodetector such that the wavelength of light filtered is dependant upon the comparative percentage of intensity to that of the peak intensity of the most strongly detected wavelength. The prior art of reference make common use of filters that selectively absorb or transmit scintillation light based on predetermined wavelength band, but does not teach the intensity dependent relationship taught in the instant application.

Arthur discloses that the filter is a bandpass optical filter (bandpass optical filter 10, figure 1, column 1 lines 33-57) for use in a scintillation detector that is disposed between a scintillator (scintillation crystal 30, figure 1) and a photodetector (photomultiplier tube 16, figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to filter the light using a bandpass filter. The motivation for doing so would have been to selectively filter only the desired scintillated wavelengths to the photodetector.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is 571-272-6003. The examiner can normally be reached on MTWRF 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David S Baker
Examiner
Art Unit 2878

DSB

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800